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Air Quality Impact of Proposed 1985 and Later Model Year Light Duty Truck and Heavy Duty Vehicle Emissions Standards for Oxides of Nitrogen - Summary of Results

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16. ABSTRACT

This report describes the data, assumptions and methodology for assessing the air quality impact of the proposed 1985 and later model year light duty truck (LDT) and heavy duty vehicle (HDV) emission standards for oxides of nitrogen.

The proposed 0.9 gram per mile LDT and the 1.7 gram per brake horsepower hour HDV standards were assumed to apply to 1985 and later model year vehicles in this analysis. These standards represent a 75 percent reduction from 1972-1973 baseline NOx emissions.

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July 1980

Test and Evaluation Branch
Emission Control Technology Division
Office of Mobile Source Air Pollution Control
Environmental Protection Agency

Air Quality Impact of Proposed 1985 and Later Model Year Light Duty Truck and Heavy Duty Vehicle Emission Standards for Oxides of Nitrogen - Summary of Results

This report describes the data, assumptions and methodology for assessing the air quality impact of the proposed 1985 and later model year light duty truck (LDT) and heavy duty vehicle (HDV) emission standards for oxides of nitrogen.

The proposed 0.9 gram per mile LDT and the 1.7 gram per brake horsepower hour HDV standards were assumed to apply to 1985 and later model year vehicles in this analysis. These standards represent a 75 percent reduction from 1972-1973 baseline NOx emissions. Those scenarios dealing with the proposed standards are referred to hereafter as the control case. The base case, with which the control case is compared, assumes no further standards beyond what has already been promulgated.

Emission Factors

The Mobile Source Emission Factors document (Reference 1) and its associated computer model, MOBILE1, were the primary sources for the highway vehicle emission rates used in this analysis. A few emission factor assumptions were modified to meet the requirements of this analysis. Corresponding changes were made to the computer model, MOBILE1. The modifications are documented in Reference 2. Briefly, the mobile source emission factor assumptions used in the current analysis include the following:

1. Light duty vehicle emission factors were assumed to be identical to those presented in the March, 1978 Mobile Source Emission Factors document.

2. Light duty diesel passenger vehicle and truck emission factors were assumed to be identical to their gasoline counterparts. (The air quality analysis will be redone using actual diesel emission factor rates in time for final rulemaking. The rates are not presently available in MOBILE1.)

3. Inspection maintenance programs were assumed not to change NOx emission factor rates.

4. Parameter adjustment regulations were assumed not to change NOx emission factor rates.

5. Light duty truck, heavy duty gas truck (HDG), and heavy duty diesel truck (HDD) emission rates were changed from those presented in the March, 1978 Mobile Source Emission Factors document to reflect new NOx test data. For the control case, additional changes were made in the rates to reflect the proposed regulations. These changes are also documented in Reference 2.

The inputs to the computer program MOBILE1 were set to the normal Federal Test Procedure (FTP) conditions for this analysis. These are 75°F ambient temperature and average vehicle speeds of 26, 16, and 26 miles per hour for FTP segments 1, 2, and 3. In addition, 21 percent of vehicle mileage is assumed to be accumulated in the cold start mode and 27 percent of vehicle mileage is assumed to be accumulated in the hot start mode. The composite

emission factors for calendar year 1976, calculated by MOBILE1, are presented in Appendix A. These are the same for both the base and control cases. For the four evaluation years - 1985, 1990, 1995, and 1999 - the emission factors for the two cases are different. The differences reflect the impact of the proposed NOx regulations. Appendix B gives the future year emission factors.

To project future NOx emission inventories, mobile source emission ratios were calculated for each vehicle category. These are presented in Table 1 and were derived by dividing the emission factors projected for future calendar years by the 1976 base year emission factor.

Inventories

The air quality control regions (AQCRs) selected for this analysis include 28 low altitude, non-California AQCRs, 4 California AQCRs and 2 high altitude AQCRs. These 34 regions represent all of the AQCRs in which the highest annual mean NO2 concentration recorded was at least 60 percent of the National Ambient Air Quality Standard (NAAQS) for NO2 (100 ug/m^3). This selection criterion was employed to obtain those AQCRs that are most likely to exceed the NO2 standard in the future, since NOx emissions are expected to increase over time.

The National Emission Data System (NEDS) contains NOx inventory estimates for each AQCR. (Reference 3.) Estimates are available for both mobile and stationary emission sources. The mobile source portion of the NEDS inventory for each AQCR was constructed using emission factors from the March, 1978 version of MOBILE1. These factors are given as the first of the two sets of emission factors presented in Appendix A. The second set of factors presented in that appendix corresponds to a version of MOBILE1 modified to accomodate the revised emission estimates referred to above. The ratio of these two sets of factors (revised emission factors divided by the NEDS emission factors) were used to adjust the mobile source portion of the NEDS inventory for use in this analysis. These ratios are presented in Table 2. The adjusted base year inventory is presented in Appendix C.

The stationary area source emissions used in this analysis were obtained directly from NEDS. Stationary point source emissions, however, were not included with the base year inventory, since dispersion models have indicated that NO2 emissions from these remote sources do not influence the ambient concentration measurements made at urban monitors. (Reference 4). Any small contributions to annual average NO2 at urban sites that may result from point sources are assumed to be accounted for in background concentration levels.

Rollback Air Quality Model

The modified linear rollback model (ROLLBACK) was used to estimate future NO2 ambient concentrations. In its simplest form, a proportional relationship is assumed to exist between the ambient concentration of a pollutant at a monitoring site and the total inventory of pollutants emitted in the vicinity of that site. Thus, if emissions decline over time, ambient concentrations are assumed to decline in the same proportion. A detailed description of ROLLBACK is contained in Reference 5.

For the base year, the air quality level that is used as input to the ROLLBACK model is called a design value. The air quality design values that were used represent the highest 1976 annual mean NO2 concentration recorded in each of the 34 AQCRs that were included in the study. Since more than one monitor may be operating in a region, the monitor with the highest annual mean was chosen to represent each AQCR. This methodology is consistent with the draft NO2 NAAQS Regulatory Analysis described in Reference 4. Based on information in References 6 and 7, a background concentration of 8 ug/m^3 NO2 has also been included.

Growth Rate and Stationary Source Control Assumptions

In order to project base year inventories and air quality concentration levels, it is necessary to estimate future activity levels of pollution sources. Two sets of growth rates were used in this analysis to provide a range of air quality estimates. It is likely that actual future ambient concentrations will fall within the predicted ranges. The growth rates that were applied to the individual mobile and stationary sources are listed in Table 3.

LDV, LDT, and off-highway vehicle miles traveled were assumed to grow at a one percent rate in the low growth scenario and at a three percent rate in the high growth scenario. These rates were compounded annually and are based on historical trends. (Reference 6.) On the other hand, HDG and HDD VMT were assumed to change at the rate of negative two and plus five percent, respectively, in both the low and high growth rate scenarios. These heavy duty vehicle growth rates are based on sales figures indicating that diesel trucks are replacing gasoline powered trucks in the heavy duty fleet. (Reference 8).

In the low growth scenario stationary area sources were assumed to grow at the expected population annual compound growth rate of one percent. (Reference 4.) For the high growth scenario these sources were assumed to grow at two percent. Stationary point sources were assumed to grow at the same rate as the real gross national product (GNP) for both the low and high growth scenarios. GNP is expected to increase at a two and one half percent compound annual rate. (Reference 9).

The stationary source emissions control assumptions used are described in Reference 10 and summarized in Table 3. These new source performance standards (NSPS) assumptions apply more stringent controls from 1983 to 1999.

Summary of Results

The region by region air quality projections for each scenario are presented in Appendix D. Generally, when comparing emission control strategies, it is better to focus on the relative differences in air quality levels among the various alternatives, rather than on the absolute predictions of those levels.

A summary of the average percent reductions in expected ambient NO2 concentrations from the 1976 base year is presented in Table 4. Under the proposed NOx standards with low mobile and stationary source growth, the ROLLBACK model predicts that 1999 concentration levels will be reduced an

average of 22 percent from the 1976 base year concentrations. In the high growth scenario, 1999 concentrations are expected to increase by 6 percent. Without the implementation of the proposed NOx standards, however, ROLLBACK predicts an average 6 and 36 percent increase in, respectively, the low and high growth rate scenarios.

These reductions indicate, as shown in Table 5, that complete attainment of the annual NO2 NAAQS will occur under the proposed standard, low growth rate scenario. However, seven AQCRs are expected to exceed the NAAQS in 1999 under the proposed standard with the high growth scenario. On the other hand, without the proposed standard, six AQCRs are projected exceed the NAAQS in 1999, if growth rates are low. If growth rates are high, 20 of the 34 AQCRs analyzed will exceed the NAAQS.

In 1976, just 3 AQCRs exceeded the NAAQS. Thus, under both high and low growth rate scenarios, the proposed NOx standards are expected to reduce substantially the potential number of AQCRs in violation of the annual average NO2 NAAQS.

Table 1

Oxides of Nitrogen Emission Factor Ratios ($x10^2$)

Region	Strategy	Projection Year	LDV	LDT	HDG	HDD
Low Altitude Non-California	No Further Standard	80	76	83	96	96
		85	52	63	95	88
		90	45	57	94	86
		95	45	55	94	86
		99	45	55	94	86
	Proposed Standard	80	*	*	*	*
		85	*	62	90	81
		90	*	39	50	33
		95	*	28	31	21
		99	*	25	26	19
California	No Further Standard	80	72	78	92	82
		85	51	53	84	67
		90	48	44	77	60
		95	47	42	74	59
		99	47	41	73	59
	Proposed Standard	80	*	*	*	*
		85	*	*	81	63
		90	*	*	45	29
		95	*	*	30	20
		99	*	*	26	18
High Altitude	No Further Standard	80	92	86	98	100
		85	71	69	96	101
		90	68	65	94	102
		95	69	64	92	102
		99	69	64	92	102
	Proposed Standard	80	*	*	*	*
		85	*	67	92	93
		90	*	50	58	39
		95	*	41	43	25
		99	*	38	39	22

* No change from "No Further Standard" strategy.

Table 2

Oxides of Nitrogen Base Year Inventory Adjustments

	Light Duty Vehicles	Light Duty Trucks	Heavy Duty Gas	Heavy Duty Diesel	Off-Highway Mobile Sources
Low Altitude Non-California	1.0294	1.0321	0.9424	1.0534	1.00
California	1.0227	1.0186	0.9854	1.0625	1.00
High Altitude	1.0365	1.0365	0.9388	0.9696	1.00

* Adjustment Factor = $\frac{\text{Modified 1976 MOBILE1 Emission Factor}}{\text{Original 1976 MOBILE1 Emission Factor}}$

Table 3

Mobile and Stationary Source Growth Rates and
Stationary Source NSPS Control Efficiencies

	Annual Compound Growth (percent)		NSPS[@] Control Efficiency (percent)
Mobile Sources	Low	High	
Light Duty Vehicles	+1.0	+3.0	*
Light Duty Trucks	+1.0	+3.0	*
Heavy Duty Gasoline Trucks	-2.0	-2.0	*
Heavy Duty Diesel Trucks	+5.0	+5.0	*
Off-Highway Vehicles	+1.0	+3.0	*
Stationary Area Sources			
Residential Oil and Gas	+1.0	+2.0	50
Commercial Coal	+1.0	+2.0	24
Commercial Oil and Gas	+1.0	+2.0	50
Industrial Coal	+1.0	+2.0	24
Industrial Oil and Gas	+1.0	+2.0	50
All Other	+1.0	+2.0	0
Stationary Point Sources	+2.5	+2.5	0

@ Assumed to apply in 1983 and later calendar years.

* Mobile source control efficiencies are incorporated in the emission factors predicted by MOBILE1 and are therefore not estimated separately.

Table 4

Average Percent Change in Expected
Ambient NO2 Concentrations from 1976 Base Year

Growth	Strategy	Projection Year 1980	1985	1990	1995	1999
Low	No Further Standard	-6	-12	-9	-1	+6
	Proposed Standard	-6	-13	-24	-25	-22
High	No Further Standard	-1	-2	+7	+21	+36
	Proposed Standard	-1	-4	-9	-3	+6

Table 5

Number of Air Quality Control Regions Expected
to Exceed the National Ambient Air Quality Standard for NO2*

Growth	Strategy	Projection Year 1980	1985	1990	1995	1999
Low	No Further Standard	2	1	2	4	6
	Proposed Standard	2	1	0	0	0
High	No Further Standard	3	3	5	13	20
	Proposed Standard	3	3	2	2	7

* 100 ug/m^3

References

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Appendix A

Base Year Mobile Source Emission Factor Estimates

BASE CASE FOR THE NOX REG PACKAGE 5/02/80 UNMODIFIED MOBILE1 ESTIMATES

EMISSION FACTOR MODIFICATION PROFILE:

REGION	MODE	POLLUTANT	FIRST MY	LAST MY	BASE	DEL	ALTERED
1	2	1	1983	1999	0.80	0.35	YES
1	2	2	1983	1999	11.70	4.31	YES
1	3	1	1983	1999	0.80	0.35	YES
1	3	2	1983	1999	11.70	4.31	YES
1	2	3	1985	1999	1.73	0.11	YES
1	3	3	1985	1999	1.73	0.11	YES
1	4	3	1985	1999	9.50	0.0	YES
1	5	3	1985	1999	18.90	0.0	YES
2	4	3	1985	1999	7.30	0.0	YES
2	5	3	1985	1999	13.00	0.0	YES
3	2	3	1985	1999	1.07	0.11	YES
3	3	3	1985	1999	1.07	0.11	YES
3	4	3	1985	1999	5.89	0.0	YES
3	5	3	1985	1999	12.30	0.0	YES

*NON-METH HC EMISSION FACTORS INCLUDE EVAP. HC EMISSION FACTORS

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC

CAL. YEAR: 1976 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005

REGION: 49-STATE 19.6/19.6/19.6 MPH (19.6) 20.6/ 27.3/ 20.6

LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO

I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	7.42	8.16	9.45	25.38	4.20	10.30	8.31
EXHAUST CO:	64.80	62.01	71.59	275.51	32.12	36.29	73.36
EXHAUST NOx:	3.40	3.15	4.71	10.77	20.98	0.13	4.32

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC

CAL. YEAR: 1976 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005

REGION: CALIF. 19.6/19.6/19.6 MPH (19.6) 20.6/ 27.3/ 20.6

LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO

I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	7.52	8.03	11.46	27.59	3.92	10.08	8.59
EXHAUST CO:	61.63	68.77	81.66	272.52	30.91	37.14	71.62
EXHAUST NOx:	3.08	3.21	5.37	10.24	20.80	0.13	4.08

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC

CAL. YEAR: 1976 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005

REGION: HI-ALT. 19.6/19.6/19.6 MPH (19.6) 20.6/ 27.3/ 20.6

LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO

I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	9.59	10.39	11.83	33.99	5.24	13.52	10.75
EXHAUST CO:	97.56	100.99	125.85	414.32	51.98	50.53	112.00
EXHAUST NOx:	2.19	2.14	3.34	6.86	12.48	0.08	2.77

BASE CASE FOR THE NOX REG PACKAGE 5/02/80 REVISED MOBILE1 ESTIMATES

EMISSION FACTOR MODIFICATION PROFILE:

REGION	MODE	POLLUTANT	FIRST MY	LAST MY	BASE	DEL	ALTERED
1	2	1	1983	1999	0.80	0.35	YES
1	2	2	1983	1999	11.70	4.31	YES
1	3	1	1983	1999	0.80	0.35	YES
1	3	2	1983	1999	11.70	4.31	YES
1	2	3	1985	1999	1.73	0.11	YES
1	3	3	1985	1999	1.73	0.11	YES
1	4	3	1985	1999	9.50	0.0	YES
1	5	3	1985	1999	18.90	0.0	YES
2	4	3	1985	1999	7.30	0.0	YES
2	5	3	1985	1999	13.00	0.0	YES
3	2	3	1985	1999	1.07	0.11	YES
3	3	3	1985	1999	1.07	0.11	YES
3	4	3	1985	1999	5.89	0.0	YES
3	5	3	1985	1999	12.30	0.0	YES

*NON-METH HC EMISSION FACTORS INCLUDE EVAP. HC EMISSION FACTORS

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC

CAL. YEAR: 1976 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005

REGION: 49-STATE 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6

LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO

I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	7.19	7.91	10.72	21.00	4.10	10.72	7.98
EXHAUST CO:	62.45	65.83	79.36	252.55	11.28	35.23	70.46
EXHAUST NOx:	3.50	3.47	5.54	10.15	22.10	0.14	4.47

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC

CAL. YEAR: 1976 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005

REGION: CALIF. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6

LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO

I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	7.26	7.76	11.09	26.91	4.33	10.42	8.32
EXHAUST CO:	59.22	65.84	78.24	266.98	30.27	36.05	69.05
EXHAUST NOx:	3.15	3.29	5.45	10.09	22.10	0.14	4.18

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC

CAL. YEAR: 1976 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005

REGION: HI-ALT. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6

LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO

I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	9.30	10.09	13.95	40.05	5.82	13.96	10.92
EXHAUST CO:	92.98	96.35	120.54	405.38	50.93	48.62	107.31
EXHAUST NOx:	2.27	2.22	3.46	6.44	12.10	0.08	2.82

Appendix B

Future Mobile Source Emission Factor Estimates

BASE CASE FOR THE NOX REG PACKAGE 5/02/80

EMISSION FACTOR MODIFICATION PROFILE:

REGION	MODE	POLLUTANT	FIRST MY	LAST MY	BASE	DEL	ALTERED
1	2	1	1983	1999	0.80	0.35	YES
1	2	2	1983	1999	11.70	4.31	YES
1	3	1	1983	1999	0.80	0.35	YES
1	3	2	1983	1999	11.70	4.31	YES
1	2	3	1985	1999	1.73	0.11	YES
1	3	3	1985	1999	1.73	0.11	YES
1	4	3	1985	1999	9.50	0.0	YES
1	5	3	1985	1999	18.90	0.0	YES
2	4	3	1985	1999	7.30	0.0	YES
2	5	3	1985	1999	13.00	0.0	YES
3	2	3	1985	1999	1.07	0.11	YES
3	3	3	1985	1999	1.07	0.11	YES
3	4	3	1985	1999	5.89	0.0	YES
3	5	3	1985	1999	12.30	0.0	YES

*NON-METH HC EMISSION FACTORS INCLUDE EVAP. HC EMISSION FACTORS

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC

CAL. YEAR: 1976 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005

REGION: 49-STATE 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6

LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO

I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	7.19	7.91	10.72	21.00	4.10	10.72	7.98
EXHAUST CO:	62.45	65.83	79.36	252.55	11.28	35.23	70.46
EXHAUST NOx:	3.50	3.47	5.54	10.15	22.10	0.14	4.47

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC

CAL. YEAR: 1980 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005

REGION: 49-STATE 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6

LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO

I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	4.77	5.89	8.75	18.22	4.10	7.17	5.66
EXHAUST CO:	47.07	57.14	73.17	256.29	11.28	26.44	57.37
EXHAUST NOx:	2.66	2.73	4.71	9.76	21.20	0.26	3.67

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC

CAL. YEAR: 1985 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005

REGION: 49-STATE 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6

LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO

I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	1.88	3.44	4.91	12.43	3.69	1.97	2.67
EXHAUST CO:	17.17	37.69	46.48	221.91	11.28	7.91	29.05
EXHAUST NOx:	1.81	2.42	3.28	9.62	19.39	0.47	2.82

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1990 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: 49-STATE 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	1.00	2.46	3.10	6.07	2.86	0.46	1.49
EXHAUST CO:	9.39	29.28	34.03	105.62	11.28	3.36	16.33
EXHAUST NOx:	1.59	2.39	2.75	9.59	19.00	0.18	2.60

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1995 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: 49-STATE 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	0.85	2.12	2.47	3.27	2.68	0.31	1.18
EXHAUST CO:	7.83	26.83	30.16	56.72	11.28	2.87	12.51
EXHAUST NOx:	1.57	2.41	2.57	9.53	18.92	0.16	2.57

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1999 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: 49-STATE 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	0.82	2.03	2.21	2.21	2.64	0.31	1.09
EXHAUST CO:	7.58	26.03	28.40	40.13	11.28	2.87	11.41
EXHAUST NOx:	1.57	2.43	2.51	9.54	18.90	0.16	2.56

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1976 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: CALIF. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	7.26	7.76	11.09	26.91	4.33	10.42	8.32
EXHAUST CO:	59.22	65.84	78.24	266.98	30.27	36.05	69.05
EXHAUST NOx:	3.15	3.29	5.45	10.09	22.10	0.14	4.18

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1980 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: CALIF. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	4.60	5.45	8.42	19.17	4.39	6.88	5.53
EXHAUST CO:	37.67	53.43	70.34	254.91	27.88	27.36	49.90
EXHAUST NOx:	2.26	2.50	4.34	9.33	18.04	0.26	3.19

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1985 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: CALIF. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	1.79	2.63	4.09	11.11	3.68	1.48	2.45
EXHAUST CO:	15.14	26.40	39.07	193.16	27.20	8.46	25.53
EXHAUST NOx:	1.61	1.93	2.67	8.49	14.80	0.47	2.40

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1990 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: CALIF. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	1.00	1.63	2.24	5.91	2.97	0.40	1.39
EXHAUST CO:	10.05	15.91	21.70	93.40	27.02	3.46	15.31
EXHAUST NOx:	1.50	1.66	2.15	7.74	13.37	0.18	2.19

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1995 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: CALIF. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	0.86	1.25	1.51	3.13	2.83	0.31	1.08
EXHAUST CO:	8.79	12.28	15.53	52.57	27.00	2.87	11.88
EXHAUST NOx:	1.49	1.63	2.01	7.45	13.06	0.16	2.15

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1999 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: CALIF. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	0.83	1.17	1.29	2.27	2.80	0.31	1.00
EXHAUST CO:	8.60	11.12	12.60	38.16	27.00	2.87	10.85
EXHAUST NOx:	1.49	1.62	2.00	7.37	13.01	0.16	2.14

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1976 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: HI-ALT. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	9.30	10.09	13.95	40.05	5.82	13.96	10.92
EXHAUST CO:	92.98	96.35	120.54	405.38	50.93	48.62	107.31
EXHAUST NOx:	2.27	2.22	3.46	6.44	12.10	0.08	2.82

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1980 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: HI-ALT. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	5.93	7.18	11.33	36.35	5.93	10.08	7.70
EXHAUST CO:	63.85	75.59	105.81	386.96	45.73	36.30	80.80
EXHAUST NOx:	2.09	1.85	3.05	6.28	12.16	0.16	2.62

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1985 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: HI-ALT. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	2.17	3.87	5.94	20.78	4.71	2.70	3.40
EXHAUST CO:	20.87	43.78	57.33	275.33	39.44	10.49	36.29
EXHAUST NOx:	1.62	1.69	2.21	6.19	12.27	0.17	2.19

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1990 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: HI-ALT. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	1.05	2.12	3.04	9.50	3.18	0.51	1.67
EXHAUST CO:	9.90	21.89	28.82	119.80	29.65	3.58	17.22
EXHAUST NOx:	1.55	1.71	1.96	6.05	12.29	0.15	2.11

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1995 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: HI-ALT. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	0.86	1.52	1.95	4.49	2.88	0.31	1.18
EXHAUST CO:	7.89	15.16	18.91	61.74	27.54	2.88	11.96
EXHAUST NOx:	1.57	1.75	1.87	5.94	12.30	0.16	2.12

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1999 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: HI-ALT. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	0.82	1.33	1.48	2.55	2.81	0.31	1.03
EXHAUST CO:	7.58	12.49	14.29	40.86	27.14	2.87	10.34
EXHAUST NOx:	1.57	1.77	1.85	5.93	12.30	0.16	2.12

CONTROL CASE FOR THE NOX REG PACKAGE 5/02/80

*NON-METH HC EMISSION FACTORS INCLUDE EVAP. HC EMISSION FACTORS

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC

CAL. YEAR: 1976 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005

REGION: 49-STATE 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6

LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO

I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	7.19	7.91	10.72	21.00	4.10	10.72	7.98
EXHAUST CO:	62.45	65.83	79.36	252.55	11.28	35.23	70.46
EXHAUST NOx:	3.50	3.47	5.54	10.15	22.10	0.14	4.47

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC

CAL. YEAR: 1980 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005

REGION: 49-STATE 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6

LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO

I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	4.77	5.89	8.75	18.22	4.10	7.17	5.66
EXHAUST CO:	47.07	57.14	73.17	256.29	11.28	26.44	57.37
EXHAUST NOx:	2.66	2.73	4.71	9.76	21.20	0.26	3.67

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC

CAL. YEAR: 1985 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005

REGION: 49-STATE 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6

LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO

I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	1.88	3.21	4.72	12.43	3.69	1.97	2.65
EXHAUST CO:	17.17	34.18	43.45	221.91	11.28	7.91	28.67
EXHAUST NOx:	1.81	2.31	3.21	9.15	17.87	0.47	2.74

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC

CAL. YEAR: 1990 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005

REGION: 49-STATE 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6

LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO

I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	1.00	1.57	2.26	6.07	2.86	0.46	1.39
EXHAUST CO:	9.39	16.20	21.74	105.62	11.28	3.36	14.86
EXHAUST NOx:	1.59	1.50	1.97	5.05	7.37	0.18	1.94

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1995 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: 49-STATE 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	0.85	0.98	1.28	3.27	2.68	0.31	1.05
EXHAUST CO:	7.83	10.13	12.91	56.72	11.28	2.87	10.54
EXHAUST NOx:	1.57	1.16	1.38	3.18	4.58	0.16	1.70

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1999 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: 49-STATE 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	0.82	0.76	0.83	2.21	2.64	0.31	0.94
EXHAUST CO:	7.58	7.56	8.50	40.13	11.28	2.87	9.18
EXHAUST NOx:	1.57	1.08	1.17	2.69	4.14	0.16	1.64

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1976 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: CALIF. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	7.26	7.76	11.09	26.91	4.33	10.42	8.32
EXHAUST CO:	59.22	65.84	78.24	266.98	30.27	36.05	69.05
EXHAUST NOx:	3.15	3.29	5.45	10.09	22.10	0.14	4.18

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1980 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: CALIF. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	4.60	5.45	8.42	19.17	4.39	6.88	5.53
EXHAUST CO:	37.67	53.43	70.34	254.91	27.88	27.36	49.90
EXHAUST NOx:	2.26	2.50	4.34	9.33	18.04	0.26	3.19

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1985 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: CALIF. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	1.79	2.63	4.08	11.11	3.68	1.48	2.45
EXHAUST CO:	15.14	26.21	38.85	193.16	27.20	8.46	25.51
EXHAUST NOx:	1.61	1.93	2.67	8.15	13.88	0.47	2.36

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1990 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: CALIF. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	1.00	1.35	1.97	5.91	2.97	0.40	1.36
EXHAUST CO:	10.05	13.12	18.98	93.40	27.02	3.46	14.99
EXHAUST NOx:	1.50	1.66	2.15	4.55	6.33	0.18	1.82

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1995 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: CALIF. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	0.86	0.86	1.07	3.13	2.83	0.31	1.03
EXHAUST CO:	8.79	8.38	11.30	52.57	27.00	2.87	11.41
EXHAUST NOx:	1.49	1.63	2.01	3.02	4.39	0.16	1.68

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1999 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: CALIF. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	0.83	0.71	0.76	2.27	2.80	0.31	0.95
EXHAUST CO:	8.60	6.71	7.60	38.16	27.00	2.87	10.31
EXHAUST NOx:	1.49	1.62	2.00	2.61	4.07	0.16	1.65

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1976 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: HI-ALT. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	9.30	10.09	13.95	40.05	5.82	13.96	10.92
EXHAUST CO:	92.98	96.35	120.54	405.38	50.93	48.62	107.31
EXHAUST NOx:	2.27	2.22	3.46	6.44	12.10	0.08	2.82

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1980 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: HI-ALT. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	5.93	7.18	11.33	36.35	5.93	10.08	7.70
EXHAUST CO:	63.85	75.59	105.81	386.96	45.73	36.30	80.80
EXHAUST NOx:	2.09	1.85	3.05	6.28	12.16	0.16	2.62

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1985 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: HI-ALT. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	2.17	3.81	5.88	20.78	4.71	2.70	3.40
EXHAUST CO:	20.87	43.19	56.74	275.33	39.44	10.49	36.22
EXHAUST NOx:	1.62	1.64	2.18	5.94	11.28	0.17	2.14

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1990 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: HI-ALT. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	1.05	1.76	2.70	9.50	3.18	0.51	1.63
EXHAUST CO:	9.90	18.89	25.88	119.80	29.65	3.58	16.88
EXHAUST NOx:	1.55	1.26	1.56	3.72	4.72	0.15	1.72

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1995 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: HI-ALT. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	0.86	1.03	1.43	4.49	2.88	0.31	1.12
EXHAUST CO:	7.89	11.17	14.57	61.74	27.54	2.88	11.47
EXHAUST NOx:	1.57	1.09	1.24	2.75	2.97	0.16	1.61

VEH. TYPE: LDV LDT1 LDT2 HDG HDD MC
CAL. YEAR: 1999 TEMP: 75.0(F) 0.803/0.058/0.058/0.045/0.031/0.005
REGION: HI-ALT. 26.0/16.0/26.0 MPH (20.0) 20.6/ 27.3/ 20.6
LDV I/M PROGRAM STARTING IN 1982, STRINGENCY LEVEL 30%, MECH. TRAINING: NO
I/M PROG. BENEFITS APPLY ONLY TO MODEL YEARS 1951 THROUGH 1999

COMPOSITE EMISSION FACTORS (GM/MILE)

	LDV	LDT1	LDT2	HDG	HDD	MC	ALL MODES
NON-METH HC:	0.82	0.78	0.86	2.55	2.81	0.31	0.96
EXHAUST CO:	7.58	8.01	9.20	40.86	27.14	2.87	9.78
EXHAUST NOx:	1.57	1.05	1.13	2.50	2.69	0.16	1.58

Appendix C

Adjusted Base Year Emission Inventories

DISTRIBUTION OF MOBILE AND POINT SOURCE EMISSIONS

FOR NITROGEN DIOXIDE
(1000 TONS/YR)

AQCR	REGION NAME	NO2	LDV	LTRUCKS	HDV GAS	HDV DIE	OTHER		NON-HIGHWAY	REGION TOTAL
4	BIRMINGHAM	.04	23.8 (37.3)	4.6 (7.2)	7.0 (11.0)	9.0 (14.1)	13.8 (21.6)	.0 (.0)	5.6 (8.8)	63.8
15	PHOENIX-TUCSON	.04	19.1 (30.1)	3.7 (5.8)	.2 (.3)	16.2 (25.6)	17.6 (27.8)	.0 (.0)	6.6 (10.4)	63.4
18	MEMPHIS	.05	15.3 (36.0)	3.0 (7.1)	1.8 (4.2)	8.4 (19.8)	11.4 (26.8)	.0 (.0)	2.6 (6.1)	42.5
42	HARTFORD	.05	55.4 (38.1)	10.7 (7.4)	5.8 (4.0)	11.2 (7.7)	30.8 (21.2)	.0 (.0)	31.6 (21.7)	145.5
43	NY-NJ-CONN	.05	186.6 (36.1)	36.5 (7.1)	21.8 (4.2)	55.5 (10.7)	88.7 (17.2)	.0 (.0)	127.2 (24.6)	516.3
45	PHILADELPHIA	.04	93.1 (37.6)	18.3 (7.4)	21.5 (8.7)	36.9 (14.9)	47.7 (19.3)	.0 (.0)	30.0 (12.1)	247.5
47	NAT. CAPITAL	.04	59.5 (43.2)	11.8 (8.6)	9.8 (7.1)	14.3 (10.4)	29.3 (21.3)	.0 (.0)	13.0 (9.4)	137.7
56	ATLANTA	.04	48.7 (44.4)	9.7 (8.8)	3.3 (3.0)	18.4 (16.8)	18.1 (16.5)	.0 (.0)	11.5 (10.5)	109.7
67	CHICAGO	.06	115.0 (36.7)	22.8 (7.3)	37.6 (12.0)	37.9 (12.1)	31.3 (10.0)	.0 (.0)	69.0 (22.0)	313.6
78	LOUISVILLE	.04	14.7 (27.4)	2.9 (5.4)	2.6 (4.9)	6.4 (11.9)	21.0 (39.2)	.0 (.0)	6.0 (11.2)	53.6
79	CINCINNATI	.05	32.1 (35.5)	6.2 (6.9)	4.2 (4.6)	12.4 (13.7)	23.8 (26.3)	.0 (.0)	11.7 (12.9)	90.4
80	INDIANAPOLIS	.04	29.9 (40.6)	5.9 (8.0)	5.9 (8.0)	12.2 (16.6)	8.7 (11.8)	.0 (.0)	11.1 (15.1)	73.7
85	OMAHA	.03	10.2 (27.0)	2.0 (5.3)	4.1 (10.8)	6.2 (16.4)	10.8 (28.6)	.0 (.0)	4.5 (11.9)	37.8
115	BALTIMORE	.04	37.5 (44.5)	7.4 (8.8)	6.5 (7.7)	8.6 (10.2)	17.1 (20.3)	.0 (.0)	7.2 (8.5)	84.3
119	BOSTON	.05	44.4 (38.3)	8.6 (7.4)	7.3 (6.3)	8.3 (7.2)	14.9 (12.8)	.0 (.0)	32.5 (28.0)	116.0
122	CENT MICHIGAN	.05	52.5 (47.9)	10.4 (9.5)	10.7 (9.8)	9.7 (8.9)	16.1 (14.7)	.0 (.0)	10.2 (9.3)	109.6

DISTRIBUTION OF MOBILE AND POINT SOURCE EMISSIONS

FOR NITROGEN DIOXIDE
(1000 TONS/YR)

AQCR	REGION NAME	NO2	LDV	LTRUCKS	HDV GAS	HDV DIE	OTHER		NON-HIGHWAY	REGION TOTAL
123	DETROIT	.05	77.3 (44.9)	15.6 (9.1)	15.5 (9.0)	19.6 (11.4)	24.2 (14.1)	.0 (.0)	19.9 (11.6)	172.1
125	SOUTH MICHIGAN	.04	30.8 (43.5)	6.2 (8.8)	6.3 (8.9)	6.8 (9.6)	10.5 (14.8)	.0 (.0)	10.2 (14.4)	70.8
131	MINNEAPOLIS	.04	31.7 (36.0)	6.1 (6.9)	6.5 (7.4)	13.5 (15.3)	16.2 (18.4)	.0 (.0)	14.1 (16.0)	88.1
167	CHARLOTTE	.04	23.7 (38.7)	4.6 (7.5)	7.6 (12.4)	8.8 (14.4)	11.8 (19.3)	.0 (.0)	4.7 (7.7)	61.2
173	DAYTON	.03	18.9 (38.1)	3.7 (7.5)	2.2 (4.4)	7.7 (15.5)	10.5 (21.2)	.0 (.0)	6.6 (13.3)	49.6
174	CLEVELAND	.05	52.7 (35.7)	10.2 (6.9)	6.0 (4.1)	24.3 (16.5)	30.2 (20.5)	.0 (.0)	24.2 (16.4)	147.6
178	YOUNGSTOWN	.04	28.6 (35.7)	5.6 (7.0)	4.6 (5.7)	11.8 (14.7)	17.3 (21.6)	.0 (.0)	12.2 (15.2)	80.1
208	MIDDLE TENN	.04	26.9 (43.2)	5.3 (8.5)	3.0 (4.8)	11.5 (18.5)	13.2 (21.2)	.0 (.0)	2.3 (3.7)	62.2
215	DALLAS-FT#ORTH	.04	68.6 (40.2)	13.5 (7.9)	6.4 (3.8)	21.5 (12.6)	49.2 (28.8)	.0 (.0)	11.4 (6.7)	170.6
216	HOUSTON	.05	60.9 (37.0)	12.1 (7.3)	5.8 (3.5)	20.6 (12.5)	55.6 (33.7)	.0 (.0)	9.8 (5.9)	164.8
229	PUGET SOUND	.04	36.2 (39.0)	7.0 (7.5)	5.2 (5.6)	13.4 (14.4)	23.7 (25.5)	.0 (.0)	7.3 (7.9)	92.8
239	SE WISCONSIN	.03	34.3 (43.0)	6.7 (8.4)	6.4 (8.0)	12.6 (15.8)	9.6 (12.0)	.0 (.0)	10.2 (12.8)	79.8
24	LOS ANGELES	.07	177.5 (41.0)	36.7 (8.5)	36.0 (8.3)	53.4 (12.3)	77.3 (17.9)	.0 (.0)	52.1 (12.0)	433.0
28	SACRAMENTO	.03	27.2 (46.1)	5.7 (9.7)	5.7 (9.7)	6.6 (11.2)	9.5 (16.1)	.0 (.0)	4.3 (7.3)	59.0
29	SAN DIEGO	.06	26.6 (43.1)	5.4 (8.8)	5.3 (8.6)	7.7 (12.5)	11.8 (19.1)	.0 (.0)	4.9 (7.9)	61.7
30	SAN FRANCISCO	.04	83.2 (40.5)	17.3 (8.4)	16.9 (8.2)	23.5 (11.4)	42.3 (20.6)	.0 (.0)	22.2 (10.8)	205.4

DISTRIBUTION OF MOBILE AND POINT SOURCE EMISSIONS

FOR NITROGEN DIOXIDE
(1000 TONS/YR)

AQCR	REGION NAME	NO2	LDV	LTRUCKS	HDV GAS	HDV DIE	OTHER		NON-HIGHWAY	REGION TOTAL
36	DENVER	.05	18.4 (30.0)	3.5 (5.7)	5.7 (9.3)	5.3 (8.6)	18.2 (29.6)	.0 (.0)	10.3 (16.8)	61.4
220	WASATCH FRONT	.04	11.6 (23.4)	2.2 (4.4)	2.5 (5.1)	5.1 (10.3)	17.6 (35.6)	.0 (.0)	10.5 (21.2)	49.5
TOTALS			1672.9	331.9	297.7	545.3	849.8	.0	617.5	4315.1
PERCENT TOTALS			(38.8)	(7.7)	(6.9)	(12.6)	(19.7)	(.0)	(14.3)	

Appendix D

Regional Air Quality Projections

L I N E A R R O L L B A C K

STRATEGY: 1 BASE GROWTH RATE SCENARIO: 1 LO

NO2 AIR QUALITY CONCENTRATION (PPM) AND VIOLATIONS
(STANDARD IS .05 PPM)

P R O J E C T E D

	B A S E			1980	
R E G I O N	YEAR	CONC	BKGD	CONC	NUMB
004 BIRMINGHAM	1976	.04	.004	.04	0
015 PHOENIX-TUCSON	1976	.04	.004	.04	0
018 MEMPHIS	1976	.05	.004	.05	0
042 HARTFORD	1976	.05	.004	.04	0
043 NY-NJ-CONN	1976	.05	.004	.05	0
045 PHILADELPHIA	1976	.04	.004	.04	0
047 NAT. CAPITAL	1976	.04	.004	.04	0
056 ATLANTA	1976	.04	.004	.03	0
067 CHICAGO	1976	.06	.004	.06	1
078 LOUISVILLE	1976	.04	.004	.04	0
079 CINCINNATI	1976	.05	.004	.05	0
080 INDIANAPOLIS	1976	.04	.004	.04	0
085 OMAHA	1976	.03	.004	.03	0
115 BALTIMORE	1976	.04	.004	.03	0
119 BOSTON	1976	.05	.004	.04	0
122 CENT MICHIGAN	1976	.05	.004	.04	0
123 DETROIT	1976	.05	.004	.05	0
125 SOUTH MICHIGAN	1976	.04	.004	.03	0
131 MINNEAPOLIS	1976	.04	.004	.03	0
167 CHARLOTTE	1976	.04	.004	.04	0
173 DAYTON	1976	.03	.004	.03	0
174 CLEVELAND	1976	.05	.004	.04	0
178 YOUNGSTOWN	1976	.04	.004	.04	0
208 MIDDLE TENN	1976	.04	.004	.03	0
215 DALLAS-FTWORTH	1976	.04	.004	.04	0
216 HOUSTON	1976	.05	.004	.04	0
229 PUGET SOUND	1976	.04	.004	.04	0
239 SE WISCONSIN	1976	.03	.004	.03	0
024 LOS ANGELES	1976	.07	.004	.06	1
028 SACRAMENTO	1976	.03	.004	.03	0
029 SAN DIEGO	1976	.06	.004	.05	0
030 SAN FRANCISCO	1976	.04	.004	.03	0
036 DENVER	1976	.05	.004	.05	0
220 WASATCH FRONT	1976	.04	.004	.04	0

AVERAGE PERCENT CHANGE	-6.
NO. OF CITIES ABOVE STD	2
TOTAL NO. OF VIOLATIONS	2

L I N E A R R O L L B A C K

STRATEGY: 1 BASE GROWTH RATE SCENARIO: 1 LO

NO2 AIR QUALITY CONCENTRATION (PPM) AND VIOLATIONS
(STANDARD IS .05 PPM)

P R O J E C T E D

R E G I O N	B A S E YEAR	CONC	BKGD	1985 CONC	NUMB
004 BIRMINGHAM	1976	.04	.004	.04	0
015 PHOENIX-TUCSON	1976	.04	.004	.04	0
018 MEMPHIS	1976	.05	.004	.05	0
042 HARTFORD	1976	.05	.004	.04	0
043 NY-NJ-CONN	1976	.05	.004	.04	0
045 PHILADELPHIA	1976	.04	.004	.04	0
047 NAT. CAPITAL	1976	.04	.004	.04	0
056 ATLANTA	1976	.04	.004	.03	0
067 CHICAGO	1976	.06	.004	.05	0
078 LOUISVILLE	1976	.04	.004	.04	0
079 CINCINNATI	1976	.05	.004	.05	0
080 INDIANAPOLIS	1976	.04	.004	.03	0
085 OMAHA	1976	.03	.004	.03	0
115 BALTIMORE	1976	.04	.004	.03	0
119 BOSTON	1976	.05	.004	.04	0
122 CENT MICHIGAN	1976	.05	.004	.04	0
123 DETROIT	1976	.05	.004	.04	0
125 SOUTH MICHIGAN	1976	.04	.004	.03	0
131 MINNEAPOLIS	1976	.04	.004	.03	0
167 CHARLOTTE	1976	.04	.004	.03	0
173 DAYTON	1976	.03	.004	.03	0
174 CLEVELAND	1976	.05	.004	.04	0
178 YOUNGSTOWN	1976	.04	.004	.03	0
208 MIDDLE TENN	1976	.04	.004	.03	0
215 DALLAS-FTWORTH	1976	.04	.004	.03	0
216 HOUSTON	1976	.05	.004	.04	0
229 PUGET SOUND	1976	.04	.004	.04	0
239 SE WISCONSIN	1976	.03	.004	.03	0
024 LOS ANGELES	1976	.07	.004	.06	1
028 SACRAMENTO	1976	.03	.004	.03	0
029 SAN DIEGO	1976	.06	.004	.04	0
030 SAN FRANCISCO	1976	.04	.004	.03	0
036 DENVER	1976	.05	.004	.05	0
220 WASATCH FRONT	1976	.04	.004	.04	0

AVERAGE PERCENT CHANGE	-12.
NO. OF CITIES ABOVE STD	1
TOTAL NO. OF VIOLATIONS	1

L I N E A R R O L L B A C K

STRATEGY: 1 BASE GROWTH RATE SCENARIO: 1 LO

NO2 AIR QUALITY CONCENTRATION (PPM) AND VIOLATIONS
(STANDARD IS .05 PPM)

		BASE		PROJECTED 1990	
	REGION	YEAR CONC	BKGD	CONC	NUMB
004	BIRMINGHAM	1976 .04	.004	.04	0
015	PHOENIX-TUCSON	1976 .04	.004	.05	0
018	MEMPHIS	1976 .05	.004	.05	0
042	HARTFORD	1976 .05	.004	.04	0
043	NY-NJ-CONN	1976 .05	.004	.04	0
045	PHILADELPHIA	1976 .04	.004	.04	0
047	NAT. CAPITAL	1976 .04	.004	.04	0
056	ATLANTA	1976 .04	.004	.03	0
067	CHICAGO	1976 .06	.004	.05	0
078	LOUISVILLE	1976 .04	.004	.04	0
079	CINCINNATI	1976 .05	.004	.05	0
080	INDIANAPOLIS	1976 .04	.004	.03	0
085	OMAHA	1976 .03	.004	.03	0
115	BALTIMORE	1976 .04	.004	.03	0
119	BOSTON	1976 .05	.004	.04	0
122	CENT MICHIGAN	1976 .05	.004	.04	0
123	DETROIT	1976 .05	.004	.05	0
125	SOUTH MICHIGAN	1976 .04	.004	.03	0
131	MINNEAPOLIS	1976 .04	.004	.03	0
167	CHARLOTTE	1976 .04	.004	.04	0
173	DAYTON	1976 .03	.004	.03	0
174	CLEVELAND	1976 .05	.004	.04	0
178	YOUNGSTOWN	1976 .04	.004	.04	0
208	MIDDLE TENN	1976 .04	.004	.03	0
215	DALLAS-FTWORTH	1976 .04	.004	.03	0
216	HOUSTON	1976 .05	.004	.04	0
229	PUGET SOUND	1976 .04	.004	.04	0
239	SE WISCONSIN	1976 .03	.004	.03	0
024	LOS ANGELES	1976 .07	.004	.06	1
028	SACRAMENTO	1976 .03	.004	.03	0
029	SAN DIEGO	1976 .06	.004	.04	0
030	SAN FRANCISCO	1976 .04	.004	.03	0
036	DENVER	1976 .05	.004	.06	1
220	WASATCH FRONT	1976 .04	.004	.05	0

AVERAGE PERCENT CHANGE	-9.
NO. OF CITIES ABOVE STD	2
TOTAL NO. OF VIOLATIONS	2

L I N E A R R O L L B A C K

STRATEGY: 1 BASE GROWTH RATE SCENARIO: 1 LO

NO2 AIR QUALITY CONCENTRATION (PPM) AND VIOLATIONS
(STANDARD IS .05 PPM)

P R O J E C T E D

	B A S E			1995	
R E G I O N	YEAR	CONC	BKGD	CONC	NUMB
004 BIRMINGHAM	1976	.04	.004	.04	0
015 PHOENIX-TUCSON	1976	.04	.004	.05	0
018 MEMPHIS	1976	.05	.004	.06	1
042 HARTFORD	1976	.05	.004	.04	0
043 NY-NJ-CONN	1976	.05	.004	.05	0
045 PHILADELPHIA	1976	.04	.004	.04	0
047 NAT. CAPITAL	1976	.04	.004	.04	0
056 ATLANTA	1976	.04	.004	.04	0
067 CHICAGO	1976	.06	.004	.06	1
078 LOUISVILLE	1976	.04	.004	.05	0
079 CINCINNATI	1976	.05	.004	.05	0
080 INDIANAPOLIS	1976	.04	.004	.04	0
085 OMAHA	1976	.03	.004	.04	0
115 BALTIMORE	1976	.04	.004	.03	0
119 BOSTON	1976	.05	.004	.04	0
122 CENT MICHIGAN	1976	.05	.004	.04	0
123 DETROIT	1976	.05	.004	.05	0
125 SOUTH MICHIGAN	1976	.04	.004	.03	0
131 MINNEAPOLIS	1976	.04	.004	.04	0
167 CHARLOTTE	1976	.04	.004	.04	0
173 DAYTON	1976	.03	.004	.03	0
174 CLEVELAND	1976	.05	.004	.05	0
178 YOUNGSTOWN	1976	.04	.004	.04	0
208 MIDDLE TENN	1976	.04	.004	.04	0
215 DALLAS-FTWORTH	1976	.04	.004	.04	0
216 HOUSTON	1976	.05	.004	.05	0
229 PUGET SOUND	1976	.04	.004	.04	0
239 SE WISCONSIN	1976	.03	.004	.03	0
024 LOS ANGELES	1976	.07	.004	.06	1
028 SACRAMENTO	1976	.03	.004	.03	0
029 SAN DIEGO	1976	.06	.004	.05	0
030 SAN FRANCISCO	1976	.04	.004	.03	0
036 DENVER	1976	.05	.004	.06	1
220 WASATCH FRONT	1976	.04	.004	.05	0

AVERAGE PERCENT CHANGE	-1.
NO. OF CITIES ABOVE STD	4
TOTAL NO. OF VIOLATIONS	4

L I N E A R R O L L B A C K

STRATEGY: 1 BASE GROWTH RATE SCENARIO: 1 LO

NO2 AIR QUALITY CONCENTRATION (PPM) AND VIOLATIONS
(STANDARD IS .05 PPM)

P R O J E C T E D

R E G I O N	B A S E YEAR	CONC	BKGD	1999 CONC	NUMB
004 BIRMINGHAM	1976	.04	.004	.05	0
015 PHOENIX-TUCSON	1976	.04	.004	.06	1
018 MEMPHIS	1976	.05	.004	.06	1
042 HARTFORD	1976	.05	.004	.05	0
043 NY-NJ-CONN	1976	.05	.004	.05	0
045 PHILADELPHIA	1976	.04	.004	.05	0
047 NAT. CAPITAL	1976	.04	.004	.04	0
056 ATLANTA	1976	.04	.004	.04	0
067 CHICAGO	1976	.06	.004	.06	1
078 LOUISVILLE	1976	.04	.004	.05	0
079 CINCINNATI	1976	.05	.004	.06	1
080 INDIANAPOLIS	1976	.04	.004	.04	0
085 OMAHA	1976	.03	.004	.04	0
115 BALTIMORE	1976	.04	.004	.03	0
119 BOSTON	1976	.05	.004	.04	0
122 CENT MICHIGAN	1976	.05	.004	.04	0
123 DETROIT	1976	.05	.004	.05	0
125 SOUTH MICHIGAN	1976	.04	.004	.03	0
131 MINNEAPOLIS	1976	.04	.004	.04	0
167 CHARLOTTE	1976	.04	.004	.04	0
173 DAYTON	1976	.03	.004	.04	0
174 CLEVELAND	1976	.05	.004	.05	0
178 YOUNGSTOWN	1976	.04	.004	.04	0
208 MIDDLE TENN	1976	.04	.004	.04	0
215 DALLAS-FTWORTH	1976	.04	.004	.04	0
216 HOUSTON	1976	.05	.004	.05	0
229 PUGET SOUND	1976	.04	.004	.04	0
239 SE WISCONSIN	1976	.03	.004	.03	0
024 LOS ANGELES	1976	.07	.004	.07	1
028 SACRAMENTO	1976	.03	.004	.03	0
029 SAN DIEGO	1976	.06	.004	.05	0
030 SAN FRANCISCO	1976	.04	.004	.03	0
036 DENVER	1976	.05	.004	.06	1
220 WASATCH FRONT	1976	.04	.004	.05	0

AVERAGE PERCENT CHANGE	6.
NO. OF CITIES ABOVE STD	6
TOTAL NO. OF VIOLATIONS	6

L I N E A R R O L L B A C K

STRATEGY: 1 CONTROL GROWTH RATE SCENARIO: 1 LO

NO2 AIR QUALITY CONCENTRATION (PPM) AND VIOLATIONS
(STANDARD IS .05 PPM)

		BASE		PROJECTED 1980	
	REGION	YEAR	CONC BKGD	CONC	NUMB
004	BIRMINGHAM	1976	.04 .004	.04	0
015	PHOENIX-TUCSON	1976	.04 .004	.04	0
018	MEMPHIS	1976	.05 .004	.05	0
042	HARTFORD	1976	.05 .004	.04	0
043	NY-NJ-CONN	1976	.05 .004	.05	0
045	PHILADELPHIA	1976	.04 .004	.04	0
047	NAT. CAPITAL	1976	.04 .004	.04	0
056	ATLANTA	1976	.04 .004	.03	0
067	CHICAGO	1976	.06 .004	.06	1
078	LOUISVILLE	1976	.04 .004	.04	0
079	CINCINNATI	1976	.05 .004	.05	0
080	INDIANAPOLIS	1976	.04 .004	.04	0
085	OMAHA	1976	.03 .004	.03	0
115	BALTIMORE	1976	.04 .004	.03	0
119	BOSTON	1976	.05 .004	.04	0
122	CENT MICHIGAN	1976	.05 .004	.04	0
123	DETROIT	1976	.05 .004	.05	0
125	SOUTH MICHIGAN	1976	.04 .004	.03	0
131	MINNEAPOLIS	1976	.04 .004	.03	0
167	CHARLOTTE	1976	.04 .004	.04	0
173	DAYTON	1976	.03 .004	.03	0
174	CLEVELAND	1976	.05 .004	.04	0
178	YOUNGSTOWN	1976	.04 .004	.04	0
208	MIDDLE TENN	1976	.04 .004	.03	0
215	DALLAS-FTWORTH	1976	.04 .004	.04	0
216	HOUSTON	1976	.05 .004	.04	0
229	PUGET SOUND	1976	.04 .004	.04	0
239	SE WISCONSIN	1976	.03 .004	.03	0
024	LOS ANGELES	1976	.07 .004	.06	1
028	SACRAMENTO	1976	.03 .004	.03	0
029	SAN DIEGO	1976	.06 .004	.05	0
030	SAN FRANCISCO	1976	.04 .004	.03	0
036	DENVER	1976	.05 .004	.05	0
220	WASATCH FRONT	1976	.04 .004	.04	0

AVERAGE PERCENT CHANGE	-6.
NO. OF CITIES ABOVE STD	2
TOTAL NO. OF VIOLATIONS	2

L I N E A R R O L L B A C K

STRATEGY: 1 CONTROL GROWTH RATE SCENARIO: 1 LO

NO2 AIR QUALITY CONCENTRATION (PPM) AND VIOLATIONS
(STANDARD IS .05 PPM)

P R O J E C T E D

	B A S E			1985	
R E G I O N	YEAR	CONC	BKGD	CONC	NUMB
004 BIRMINGHAM	1976	.04	.004	.04	0
015 PHOENIX-TUCSON	1976	.04	.004	.04	0
018 MEMPHIS	1976	.05	.004	.05	0
042 HARTFORD	1976	.05	.004	.04	0
043 NY-NJ-CONN	1976	.05	.004	.04	0
045 PHILADELPHIA	1976	.04	.004	.04	0
047 NAT. CAPITAL	1976	.04	.004	.04	0
056 ATLANTA	1976	.04	.004	.03	0
067 CHICAGO	1976	.06	.004	.05	0
078 LOUISVILLE	1976	.04	.004	.04	0
079 CINCINNATI	1976	.05	.004	.05	0
080 INDIANAPOLIS	1976	.04	.004	.03	0
085 OMAHA	1976	.03	.004	.03	0
115 BALTIMORE	1976	.04	.004	.03	0
119 BOSTON	1976	.05	.004	.04	0
122 CENT MICHIGAN	1976	.05	.004	.04	0
123 DETROIT	1976	.05	.004	.04	0
125 SOUTH MICHIGAN	1976	.04	.004	.03	0
131 MINNEAPOLIS	1976	.04	.004	.03	0
167 CHARLOTTE	1976	.04	.004	.03	0
173 DAYTON	1976	.03	.004	.03	0
174 CLEVELAND	1976	.05	.004	.04	0
178 YOUNGSTOWN	1976	.04	.004	.03	0
208 MIDDLE TENN	1976	.04	.004	.03	0
215 DALLAS-FTWORTH	1976	.04	.004	.03	0
216 HOUSTON	1976	.05	.004	.04	0
229 PUGET SOUND	1976	.04	.004	.03	0
239 SE WISCONSIN	1976	.03	.004	.03	0
824 LOS ANGELES	1976	.07	.004	.06	1
028 SACRAMENTO	1976	.03	.004	.03	0
029 SAN DIEGO	1976	.06	.004	.04	0
030 SAN FRANCISCO	1976	.04	.004	.03	0
036 DENVER	1976	.05	.004	.05	0
220 WASATCH FRONT	1976	.04	.004	.04	0

AVERAGE PERCENT CHANGE	-13.
NO. OF CITIES ABOVE STD	1
TOTAL NO. OF VIOLATIONS	1

L I N E A R R O L L B A C K

STRATEGY: 1 CONTROL GROWTH RATE SCENARIO: 1 LO

NO2 AIR QUALITY CONCENTRATION (PPM) AND VIOLATIONS
(STANDARD IS .05 PPM)

		BASE			PROJECTED 1990	
	REGION	YEAR	CONC	BKGD	CONC	NUMB
004	BIRMINGHAM	1976	.04	.004	.03	0
015	PHOENIX-TUCSON	1976	.04	.004	.03	0
018	MEMPHIS	1976	.05	.004	.04	0
042	HARTFORD	1976	.05	.004	.04	0
043	NY-NJ-CONN	1976	.05	.004	.04	0
045	PHILADELPHIA	1976	.04	.004	.03	0
047	NAT. CAPITAL	1976	.04	.004	.03	0
056	ATLANTA	1976	.04	.004	.03	0
067	CHICAGO	1976	.06	.004	.04	0
078	LOUISVILLE	1976	.04	.004	.04	0
079	CINCINNATI	1976	.05	.004	.04	0
080	INDIANAPOLIS	1976	.04	.004	.03	0
085	OMAHA	1976	.03	.004	.03	0
115	BALTIMORE	1976	.04	.004	.03	0
119	BOSTON	1976	.05	.004	.04	0
122	CENT MICHIGAN	1976	.05	.004	.03	0
123	DETROIT	1976	.05	.004	.04	0
125	SOUTH MICHIGAN	1976	.04	.004	.03	0
131	MINNEAPOLIS	1976	.04	.004	.03	0
167	CHARLOTTE	1976	.04	.004	.03	0
173	DAYTON	1976	.03	.004	.03	0
174	CLEVELAND	1976	.05	.004	.04	0
178	YOUNGSTOWN	1976	.04	.004	.03	0
208	MIDDLE TENN	1976	.04	.004	.03	0
215	DALLAS-FTWORTH	1976	.04	.004	.03	0
216	HOUSTON	1976	.05	.004	.04	0
229	PUGET SOUND	1976	.04	.004	.03	0
239	SE WISCONSIN	1976	.03	.004	.02	0
024	LOS ANGELES	1976	.07	.004	.05	0
028	SACRAMENTO	1976	.03	.004	.02	0
029	SAN DIEGO	1976	.06	.004	.04	0
030	SAN FRANCISCO	1976	.04	.004	.03	0
036	DENVER	1976	.05	.004	.05	0
220	WASATCH FRONT	1976	.04	.004	.04	0

AVERAGE PERCENT CHANGE	-24.
NO. OF CITIES ABOVE STD	0
TOTAL NO. OF VIOLATIONS	0

L I N E A R R O L L B A C K

STRATEGY: 1 CONTROL GROWTH RATE SCENARIO: 1 LO

NO2 AIR QUALITY CONCENTRATION (PPM) AND VIOLATIONS
(STANDARD IS .05 PPM)

P R O J E C T E D

REGION	BASE YEAR	BASE CONC	BASE BKGD	1995 CONC	1995 NUMB
004 BIRMINGHAM	1976	.04	.004	.03	0
015 PHOENIX-TUCSON	1976	.04	.004	.03	0
018 MEMPHIS	1976	.05	.004	.04	0
042 HARTFORD	1976	.05	.004	.04	0
043 NY-NJ-CONN	1976	.05	.004	.04	0
045 PHILADELPHIA	1976	.04	.004	.03	0
047 NAT. CAPITAL	1976	.04	.004	.03	0
056 ATLANTA	1976	.04	.004	.03	0
067 CHICAGO	1976	.06	.004	.04	0
078 LOUISVILLE	1976	.04	.004	.04	0
079 CINCINNATI	1976	.05	.004	.04	0
080 INDIANAPOLIS	1976	.04	.004	.03	0
085 OMAHA	1976	.03	.004	.03	0
115 BALTIMORE	1976	.04	.004	.03	0
119 BOSTON	1976	.05	.004	.04	0
122 CENT MICHIGAN	1976	.05	.004	.03	0
123 DETROIT	1976	.05	.004	.04	0
125 SOUTH MICHIGAN	1976	.04	.004	.03	0
131 MINNEAPOLIS	1976	.04	.004	.03	0
167 CHARLOTTE	1976	.04	.004	.03	0
173 DAYTON	1976	.03	.004	.03	0
174 CLEVELAND	1976	.05	.004	.04	0
178 YOUNGSTOWN	1976	.04	.004	.03	0
208 MIDDLE TENN	1976	.04	.004	.03	0
215 DALLAS-FTWORTH	1976	.04	.004	.03	0
216 HOUSTON	1976	.05	.004	.04	0
229 PUGET SOUND	1976	.04	.004	.03	0
239 SE WISCONSIN	1976	.03	.004	.02	0
024 LOS ANGELES	1976	.07	.004	.05	0
028 SACRAMENTO	1976	.03	.004	.02	0
029 SAN DIEGO	1976	.06	.004	.04	0
030 SAN FRANCISCO	1976	.04	.004	.03	0
036 DENVER	1976	.05	.004	.05	0
220 WASATCH FRONT	1976	.04	.004	.04	0

AVERAGE PERCENT CHANGE	-25.
NO. OF CITIES ABOVE STD	0
TOTAL NO. OF VIOLATIONS	0

L I N E A R R O L L B A C K

STRATEGY: 1 CONTROL GROWTH RATE SCENARIO: 1 LO

NO2 AIR QUALITY CONCENTRATION (PPM) AND VIOLATIONS
(STANDARD IS .05 PPM)

		BASE			PROJECTED 1999	
	REGION	YEAR	CONC	BKGD	CONC	NUMB
004	BIRMINGHAM	1976	.04	.004	.03	0
015	PHOENIX-TUCSON	1976	.04	.004	.04	0
018	MEMPHIS	1976	.05	.004	.04	0
042	HARTFORD	1976	.05	.004	.04	0
043	NY-NJ-CONN	1976	.05	.004	.04	0
045	PHILADELPHIA	1976	.04	.004	.03	0
047	NAT. CAPITAL	1976	.04	.004	.03	0
056	ATLANTA	1976	.04	.004	.03	0
067	CHICAGO	1976	.06	.004	.04	0
078	LOUISVILLE	1976	.04	.004	.04	0
079	CINCINNATI	1976	.05	.004	.04	0
080	INDIANAPOLIS	1976	.04	.004	.03	0
085	OMAHA	1976	.03	.004	.03	0
115	BALTIMORE	1976	.04	.004	.03	0
119	BOSTON	1976	.05	.004	.04	0
122	CENT MICHIGAN	1976	.05	.004	.03	0
123	DETROIT	1976	.05	.004	.04	0
125	SOUTH MICHIGAN	1976	.04	.004	.03	0
131	MINNEAPOLIS	1976	.04	.004	.03	0
167	CHARLOTTE	1976	.04	.004	.03	0
173	DAYTON	1976	.03	.004	.03	0
174	CLEVELAND	1976	.05	.004	.04	0
178	YOUNGSTOWN	1976	.04	.004	.03	0
208	MIDDLE TENN	1976	.04	.004	.03	0
215	DALLAS-FTWORTH	1976	.04	.004	.03	0
216	HOUSTON	1976	.05	.004	.04	0
229	PUGET SOUND	1976	.04	.004	.03	0
239	SE WISCONSIN	1976	.03	.004	.02	0
024	LOS ANGELES	1976	.07	.004	.05	0
028	SACRAMENTO	1976	.03	.004	.02	0
029	SAN DIEGO	1976	.06	.004	.04	0
030	SAN FRANCISCO	1976	.04	.004	.03	0
036	DENVER	1976	.05	.004	.05	0
220	WASATCH FRONT	1976	.04	.004	.04	0

AVERAGE PERCENT CHANGE	-22.
NO. OF CITIES ABOVE STD	0
TOTAL NO. OF VIOLATIONS	0

L I N E A R R O L L B A C K

STRATEGY: 1 BASE GROWTH RATE SCENARIO: 2 HI

NO2 AIR QUALITY CONCENTRATION (PPM) AND VIOLATIONS
(STANDARD IS .05 PPM)

P R O J E C T E D

	B A S E			1980	
R E G I O N	YEAR	CONC	BKGD	CONC	NUMB
004 BIRMINGHAM	1976	.04	.004	.04	0
015 PHOENIX-TUCSON	1976	.04	.004	.04	0
018 MEMPHIS	1976	.05	.004	.05	0
042 HARTFORD	1976	.05	.004	.04	0
043 NY-NJ-CONN	1976	.05	.004	.05	0
045 PHILADELPHIA	1976	.04	.004	.04	0
047 NAT. CAPITAL	1976	.04	.004	.04	0
056 ATLANTA	1976	.04	.004	.04	0
067 CHICAGO	1976	.06	.004	.06	1
078 LOUISVILLE	1976	.04	.004	.04	0
079 CINCINNATI	1976	.05	.004	.05	0
080 INDIANAPOLIS	1976	.04	.004	.04	0
085 OMAHA	1976	.03	.004	.03	0
115 BALTIMORE	1976	.04	.004	.03	0
119 BOSTON	1976	.05	.004	.05	0
122 CENT MICHIGAN	1976	.05	.004	.04	0
123 DETROIT	1976	.05	.004	.05	0
125 SOUTH MICHIGAN	1976	.04	.004	.03	0
131 MINNEAPOLIS	1976	.04	.004	.04	0
167 CHARLOTTE	1976	.04	.004	.04	0
173 DAYTON	1976	.03	.004	.03	0
174 CLEVELAND	1976	.05	.004	.05	0
178 YOUNGSTOWN	1976	.04	.004	.04	0
208 MIDDLE TENN	1976	.04	.004	.04	0
215 DALLAS-FTWORTH	1976	.04	.004	.04	0
216 HOUSTON	1976	.05	.004	.05	0
229 PUGET SOUND	1976	.04	.004	.04	0
239 SE WISCONSIN	1976	.03	.004	.03	0
024 LOS ANGELES	1976	.07	.004	.07	1
028 SACRAMENTO	1976	.03	.004	.03	0
029 SAN DIEGO	1976	.06	.004	.05	0
030 SAN FRANCISCO	1976	.04	.004	.03	0
036 DENVER	1976	.05	.004	.06	1
220 WASATCH FRONT	1976	.04	.004	.05	0

AVERAGE PERCENT CHANGE	-1.
NO. OF CITIES ABOVE STD	3
TOTAL NO. OF VIOLATIONS	3

L I N E A R R O L L B A C K

STRATEGY: 1 BASE GROWTH RATE SCENARIO: 2 HI

NO2 AIR QUALITY CONCENTRATION (PPM) AND VIOLATIONS
(STANDARD IS .05 PPM)

	BASE			PROJECTED 1985	
REGION	YEAR	CONC	BKGD	CONC	NUMB
004 BIRMINGHAM	1976	.04	.004	.04	0
015 PHOENIX-TUCSON	1976	.04	.004	.05	0
018 MEMPHIS	1976	.05	.004	.05	0
042 HARTFORD	1976	.05	.004	.04	0
043 NY-NJ-CONN	1976	.05	.004	.05	0
045 PHILADELPHIA	1976	.04	.004	.04	0
047 NAT. CAPITAL	1976	.04	.004	.04	0
056 ATLANTA	1976	.04	.004	.04	0
067 CHICAGO	1976	.06	.004	.06	1
078 LOUISVILLE	1976	.04	.004	.05	0
079 CINCINNATI	1976	.05	.004	.05	0
080 INDIANAPOLIS	1976	.04	.004	.04	0
085 OMAHA	1976	.03	.004	.03	0
115 BALTIMORE	1976	.04	.004	.03	0
119 BOSTON	1976	.05	.004	.04	0
122 CENT MICHIGAN	1976	.05	.004	.04	0
123 DETROIT	1976	.05	.004	.05	0
125 SOUTH MICHIGAN	1976	.04	.004	.03	0
131 MINNEAPOLIS	1976	.04	.004	.04	0
167 CHARLOTTE	1976	.04	.004	.04	0
173 DAYTON	1976	.03	.004	.03	0
174 CLEVELAND	1976	.05	.004	.05	0
178 YOUNGSTOWN	1976	.04	.004	.04	0
208 MIDDLE TENN	1976	.04	.004	.04	0
215 DALLAS-FTWORTH	1976	.04	.004	.04	0
216 HOUSTON	1976	.05	.004	.05	0
229 PUGET SOUND	1976	.04	.004	.04	0
239 SE WISCONSIN	1976	.03	.004	.03	0
024 LOS ANGELES	1976	.07	.004	.06	1
028 SACRAMENTO	1976	.03	.004	.03	0
029 SAN DIEGO	1976	.06	.004	.05	0
030 SAN FRANCISCO	1976	.04	.004	.03	0
036 DENVER	1976	.05	.004	.06	1
220 WASATCH FRONT	1976	.04	.004	.05	0

AVERAGE PERCENT CHANGE	-2.
NO. OF CITIES ABOVE STD	3
TOTAL NO. OF VIOLATIONS	3

L I N E A R R O L L B A C K

STRATEGY: 1 BASE GROWTH RATE SCENARIO: 2 HI

NO2 AIR QUALITY CONCENTRATION (PPM) AND VIOLATIONS
(STANDARD IS .05 PPM)

		BASE		PROJECTED 1990	
REGION		YEAR	CONC BKGD	CONC	NUMB
004	BIRMINGHAM	1976	.04 .004	.05	0
015	PHOENIX-TUCSON	1976	.04 .004	.05	0
018	MEMPHIS	1976	.05 .004	.06	1
042	HARTFORD	1976	.05 .004	.05	0
043	NY-NJ-CONN	1976	.05 .004	.05	0
045	PHILADELPHIA	1976	.04 .004	.05	0
047	NAT. CAPITAL	1976	.04 .004	.04	0
056	ATLANTA	1976	.04 .004	.04	0
067	CHICAGO	1976	.06 .004	.06	1
078	LOUISVILLE	1976	.04 .004	.05	0
079	CINCINNATI	1976	.05 .004	.06	1
080	INDIANAPOLIS	1976	.04 .004	.04	0
085	OMAHA	1976	.03 .004	.04	0
115	BALTIMORE	1976	.04 .004	.04	0
119	BOSTON	1976	.05 .004	.05	0
122	CENT MICHIGAN	1976	.05 .004	.04	0
123	DETROIT	1976	.05 .004	.05	0
125	SOUTH MICHIGAN	1976	.04 .004	.04	0
131	MINNEAPOLIS	1976	.04 .004	.04	0
167	CHARLOTTE	1976	.04 .004	.04	0
173	DAYTON	1976	.03 .004	.04	0
174	CLEVELAND	1976	.05 .004	.05	0
178	YOUNGSTOWN	1976	.04 .004	.04	0
208	MIDDLE TENN	1976	.04 .004	.04	0
215	DALLAS-FTWORTH	1976	.04 .004	.04	0
216	HOUSTON	1976	.05 .004	.05	0
229	PUGET SOUND	1976	.04 .004	.04	0
239	SE WISCONSIN	1976	.03 .004	.03	0
024	LOS ANGELES	1976	.07 .004	.07	1
028	SACRAMENTO	1976	.03 .004	.03	0
029	SAN DIEGO	1976	.06 .004	.05	0
030	SAN FRANCISCO	1976	.04 .004	.04	0
036	DENVER	1976	.05 .004	.07	1
220	WASATCH FRONT	1976	.04 .004	.05	0

AVERAGE PERCENT CHANGE	7.
NO. OF CITIES ABOVE STD	5
TOTAL NO. OF VIOLATIONS	5

L I N E A R R O L L B A C K

STRATEGY: 1 BASE GROWTH RATE SCENARIO: 2 HI

NO2 AIR QUALITY CONCENTRATION (PPM) AND VIOLATIONS
(STANDARD IS .05 PPM)

		BASE		PROJECTED 1995	
REGION		YEAR	CONC BKGD	CONC	NUMB
004	BIRMINGHAM	1976	.04 .004	.05	0
015	PHOENIX-TUCSON	1976	.04 .004	.06	1
018	MEMPHIS	1976	.05 .004	.07	1
042	HARTFORD	1976	.05 .004	.05	0
043	NY-NJ-CONN	1976	.05 .004	.06	1
045	PHILADELPHIA	1976	.04 .004	.05	0
047	NAT. CAPITAL	1976	.04 .004	.05	0
056	ATLANTA	1976	.04 .004	.05	0
067	CHICAGO	1976	.06 .004	.07	1
078	LOUISVILLE	1976	.04 .004	.06	1
079	CINCINNATI	1976	.05 .004	.07	1
080	INDIANAPOLIS	1976	.04 .004	.04	0
085	OMAHA	1976	.03 .004	.04	0
115	BALTIMORE	1976	.04 .004	.04	0
119	BOSTON	1976	.05 .004	.05	0
122	CENT MICHIGAN	1976	.05 .004	.05	0
123	DETROIT	1976	.05 .004	.06	1
125	SOUTH MICHIGAN	1976	.04 .004	.04	0
131	MINNEAPOLIS	1976	.04 .004	.04	0
167	CHARLOTTE	1976	.04 .004	.05	0
173	DAYTON	1976	.03 .004	.04	0
174	CLEVELAND	1976	.05 .004	.06	1
178	YOUNGSTOWN	1976	.04 .004	.05	0
208	MIDDLE TENN	1976	.04 .004	.05	0
215	DALLAS-FTWORTH	1976	.04 .004	.05	0
216	HOUSTON	1976	.05 .004	.06	1
229	PUGET SOUND	1976	.04 .004	.05	0
239	SE WISCONSIN	1976	.03 .004	.04	0
024	LOS ANGELES	1976	.07 .004	.08	1
028	SACRAMENTO	1976	.03 .004	.03	0
029	SAN DIEGO	1976	.06 .004	.06	1
030	SAN FRANCISCO	1976	.04 .004	.04	0
036	DENVER	1976	.05 .004	.08	1
220	WASATCH FRONT	1976	.04 .004	.06	1

AVERAGE PERCENT CHANGE	21.
NO. OF CITIES ABOVE STD	13
TOTAL NO. OF VIOLATIONS	13

L I N E A R R O L L B A C K

STRATEGY: 1 BASE GROWTH RATE SCENARIO: 2 HI

NO2 AIR QUALITY CONCENTRATION (PPM) AND VIOLATIONS
(STANDARD IS .05 PPM)

P R O J E C T E D

	B A S E			1999	
R E G I O N	YEAR	CONC	BKGD	CONC	NUMB
004 BIRMINGHAM	1976	.04	.004	.06	1
015 PHOENIX-TUCSON	1976	.04	.004	.07	1
018 MEMPHIS	1976	.05	.004	.08	1
042 HARTFORD	1976	.05	.004	.06	1
043 NY-NJ-CONN	1976	.05	.004	.07	1
045 PHILADELPHIA	1976	.04	.004	.06	1
047 NAT. CAPITAL	1976	.04	.004	.06	1
056 ATLANTA	1976	.04	.004	.05	0
067 CHICAGO	1976	.06	.004	.08	1
078 LOUISVILLE	1976	.04	.004	.06	1
079 CINCINNATI	1976	.05	.004	.07	1
080 INDIANAPOLIS	1976	.04	.004	.05	0
085 OMAHA	1976	.03	.004	.05	0
115 BALTIMORE	1976	.04	.004	.05	0
119 BOSTON	1976	.05	.004	.06	1
122 CENT MICHIGAN	1976	.05	.004	.06	1
123 DETROIT	1976	.05	.004	.07	1
125 SOUTH MICHIGAN	1976	.04	.004	.04	0
131 MINNEAPOLIS	1976	.04	.004	.05	0
167 CHARLOTTE	1976	.04	.004	.05	0
173 DAYTON	1976	.03	.004	.05	0
174 CLEVELAND	1976	.05	.004	.07	1
178 YOUNGSTOWN	1976	.04	.004	.05	0
208 MIDDLE TENN	1976	.04	.004	.05	0
215 DALLAS-FTWORTH	1976	.04	.004	.05	0
216 HOUSTON	1976	.05	.004	.07	1
229 PUGET SOUND	1976	.04	.004	.06	1
239 SE WISCONSIN	1976	.03	.004	.04	0
024 LOS ANGELES	1976	.07	.004	.09	1
028 SACRAMENTO	1976	.03	.004	.04	0
029 SAN DIEGO	1976	.06	.004	.07	1
030 SAN FRANCISCO	1976	.04	.004	.04	0
036 DENVER	1976	.05	.004	.08	1
220 WASATCH FRONT	1976	.04	.004	.07	1

AVERAGE PERCENT CHANGE	36.
NO. OF CITIES ABOVE STD	20
TOTAL NO. OF VIOLATIONS	20

L I N E A R R O L L B A C K

STRATEGY: 1 CONTROL GROWTH RATE SCENARIO: 2 HI

NO2 AIR QUALITY CONCENTRATION (PPM) AND VIOLATIONS
(STANDARD IS .05 PPM)

		BASE		PROJECTED 1980	
REGION		YEAR	CONC BKGD	CONC	NUMB
004	BIRMINGHAM	1976	.04 .004	.04	0
015	PHOENIX-TUCSON	1976	.04 .004	.04	0
018	MEMPHIS	1976	.05 .004	.05	0
042	HARTFORD	1976	.05 .004	.04	0
043	NY-NJ-CONN	1976	.05 .004	.05	0
045	PHILADELPHIA	1976	.04 .004	.04	0
047	NAT. CAPITAL	1976	.04 .004	.04	0
056	ATLANTA	1976	.04 .004	.04	0
067	CHICAGO	1976	.06 .004	.06	1
078	LOUISVILLE	1976	.04 .004	.04	0
079	CINCINNATI	1976	.05 .004	.05	0
080	INDIANAPOLIS	1976	.04 .004	.04	0
085	OMAHA	1976	.03 .004	.03	0
115	BALTIMORE	1976	.04 .004	.03	0
119	BOSTON	1976	.05 .004	.05	0
122	CENT MICHIGAN	1976	.05 .004	.04	0
123	DETROIT	1976	.05 .004	.05	0
125	SOUTH MICHIGAN	1976	.04 .004	.03	0
131	MINNEAPOLIS	1976	.04 .004	.04	0
167	CHARLOTTE	1976	.04 .004	.04	0
173	DAYTON	1976	.03 .004	.03	0
174	CLEVELAND	1976	.05 .004	.05	0
178	YOUNGSTOWN	1976	.04 .004	.04	0
208	MIDDLE TENN	1976	.04 .004	.04	0
215	DALLAS-FTWORTH	1976	.04 .004	.04	0
216	HOUSTON	1976	.05 .004	.05	0
229	PUGET SOUND	1976	.04 .004	.04	0
239	SE WISCONSIN	1976	.03 .004	.03	0
024	LOS ANGELES	1976	.07 .004	.07	1
028	SACRAMENTO	1976	.03 .004	.03	0
029	SAN DIEGO	1976	.06 .004	.05	0
030	SAN FRANCISCO	1976	.04 .004	.03	0
036	DENVER	1976	.05 .004	.06	1
220	WASATCH FRONT	1976	.04 .004	.05	0

AVERAGE PERCENT CHANGE	-1.
NO. OF CITIES ABOVE STD	3
TOTAL NO. OF VIOLATIONS	3

L I N E A R R O L L B A C K

STRATEGY: 1 CONTROL GROWTH RATE SCENARIO: 2 HI

NO2 AIR QUALITY CONCENTRATION (PPM) AND VIOLATIONS
(STANDARD IS .05 PPM)

P R O J E C T E D

R E G I O N	B A S E YEAR	CONC	BKGD	1985 CONC	NUMB
004 BIRMINGHAM	1976	.04	.004	.04	0
015 PHOENIX-TUCSON	1976	.04	.004	.05	0
018 MEMPHIS	1976	.05	.004	.05	0
042 HARTFORD	1976	.05	.004	.04	0
043 NY-NJ-CONN	1976	.05	.004	.05	0
045 PHILADELPHIA	1976	.04	.004	.04	0
047 NAT. CAPITAL	1976	.04	.004	.04	0
056 ATLANTA	1976	.04	.004	.04	0
067 CHICAGO	1976	.06	.004	.06	1
078 LOUISVILLE	1976	.04	.004	.04	0
079 CINCINNATI	1976	.05	.004	.05	0
080 INDIANAPOLIS	1976	.04	.004	.04	0
085 OMAHA	1976	.03	.004	.03	0
115 BALTIMORE	1976	.04	.004	.03	0
119 BOSTON	1976	.05	.004	.04	0
122 CENT MICHIGAN	1976	.05	.004	.04	0
123 DETROIT	1976	.05	.004	.05	0
125 SOUTH MICHIGAN	1976	.04	.004	.03	0
131 MINNEAPOLIS	1976	.04	.004	.04	0
167 CHARLOTTE	1976	.04	.004	.04	0
173 DAYTON	1976	.03	.004	.03	0
174 CLEVELAND	1976	.05	.004	.05	0
178 YOUNGSTOWN	1976	.04	.004	.04	0
208 MIDDLE TENN	1976	.04	.004	.03	0
215 DALLAS-FTWORTH	1976	.04	.004	.04	0
216 HOUSTON	1976	.05	.004	.05	0
229 PUGET SOUND	1976	.04	.004	.04	0
239 SE WISCONSIN	1976	.03	.004	.03	0
024 LOS ANGELES	1976	.07	.004	.06	1
028 SACRAMENTO	1976	.03	.004	.03	0
029 SAN DIEGO	1976	.06	.004	.05	0
030 SAN FRANCISCO	1976	.04	.004	.03	0
036 DENVER	1976	.05	.004	.06	1
220 WASATCH FRONT	1976	.04	.004	.05	0

AVERAGE PERCENT CHANGE	-4.
NO. OF CITIES ABOVE STD	3
TOTAL NO. OF VIOLATIONS	3

L I N E A R R O L L B A C K

STRATEGY: 1 CONTROL GROWTH RATE SCENARIO: 2 HI

NO2 AIR QUALITY CONCENTRATION (PPM) AND VIOLATIONS
(STANDARD IS .05 PPM)

		P R O J E C T E D			
	B A S E			1990	
R E G I O N	YEAR	CONC	BKGD	CONC	NUMB
004 BIRMINGHAM	1976	.04	.004	.04	0
015 PHOENIX-TUCSON	1976	.04	.004	.04	0
018 MEMPHIS	1976	.05	.004	.05	0
042 HARTFORD	1976	.05	.004	.04	0
043 NY-NJ-CONN	1976	.05	.004	.05	0
045 PHILADELPHIA	1976	.04	.004	.04	0
047 NAT. CAPITAL	1976	.04	.004	.04	0
056 ATLANTA	1976	.04	.004	.03	0
067 CHICAGO	1976	.06	.004	.05	0
078 LOUISVILLE	1976	.04	.004	.04	0
079 CINCINNATI	1976	.05	.004	.05	0
080 INDIANAPOLIS	1976	.04	.004	.03	0
085 OMAHA	1976	.03	.004	.03	0
115 BALTIMORE	1976	.04	.004	.03	0
119 BOSTON	1976	.05	.004	.04	0
122 CENT MICHIGAN	1976	.05	.004	.04	0
123 DETROIT	1976	.05	.004	.04	0
125 SOUTH MICHIGAN	1976	.04	.004	.03	0
131 MINNEAPOLIS	1976	.04	.004	.03	0
167 CHARLOTTE	1976	.04	.004	.03	0
173 DAYTON	1976	.03	.004	.03	0
174 CLEVELAND	1976	.05	.004	.04	0
178 YOUNGSTOWN	1976	.04	.004	.03	0
208 MIDDLE TENN	1976	.04	.004	.03	0
215 DALLAS-FTWORTH	1976	.04	.004	.04	0
216 HOUSTON	1976	.05	.004	.05	0
229 PUGET SOUND	1976	.04	.004	.04	0
239 SE WISCONSIN	1976	.03	.004	.03	0
024 LOS ANGELES	1976	.07	.004	.06	1
028 SACRAMENTO	1976	.03	.004	.03	0
029 SAN DIEGO	1976	.06	.004	.05	0
030 SAN FRANCISCO	1976	.04	.004	.03	0
036 DENVER	1976	.05	.004	.06	1
220 WASATCH FRONT	1976	.04	.004	.05	0
AVERAGE PERCENT CHANGE				-9.	
NO. OF CITIES ABOVE STD				2	
TOTAL NO. OF VIOLATIONS				2	

L I N E A R R O L L B A C K

STRATEGY: 1 CONTROL GROWTH RATE SCENARIO: 2 HI

NO2 AIR QUALITY CONCENTRATION (PPM) AND VIOLATIONS
(STANDARD IS .05 PPM)

P R O J E C T E D

	B A S E			1995	
R E G I O N	YEAR	CONC	BKGD	CONC	NUMB
004 BIRMINGHAM	1976	.04	.004	.04	0
015 PHOENIX-TUCSON	1976	.04	.004	.04	0
018 MEMPHIS	1976	.05	.004	.05	0
042 HARTFORD	1976	.05	.004	.05	0
043 NY-NJ-CONN	1976	.05	.004	.05	0
045 PHILADELPHIA	1976	.04	.004	.04	0
047 NAT. CAPITAL	1976	.04	.004	.04	0
056 ATLANTA	1976	.04	.004	.03	0
067 CHICAGO	1976	.06	.004	.05	0
078 LOUISVILLE	1976	.04	.004	.05	0
079 CINCINNATI	1976	.05	.004	.05	0
080 INDIANAPOLIS	1976	.04	.004	.03	0
085 OMAHA	1976	.03	.004	.03	0
115 BALTIMORE	1976	.04	.004	.03	0
119 BOSTON	1976	.05	.004	.04	0
122 CENT MICHIGAN	1976	.05	.004	.04	0
123 DETROIT	1976	.05	.004	.05	0
125 SOUTH MICHIGAN	1976	.04	.004	.03	0
131 MINNEAPOLIS	1976	.04	.004	.03	0
167 CHARLOTTE	1976	.04	.004	.03	0
173 DAYTON	1976	.03	.004	.03	0
174 CLEVELAND	1976	.05	.004	.05	0
178 YOUNGSTOWN	1976	.04	.004	.04	0
208 MIDDLE TENN	1976	.04	.004	.03	0
215 DALLAS-FTWORTH	1976	.04	.004	.04	0
216 HOUSTON	1976	.05	.004	.05	0
229 PUGET SOUND	1976	.04	.004	.04	0
239 SE WISCONSIN	1976	.03	.004	.03	0
024 LOS ANGELES	1976	.07	.004	.07	1
028 SACRAMENTO	1976	.03	.004	.03	0
029 SAN DIEGO	1976	.06	.004	.05	0
030 SAN FRANCISCO	1976	.04	.004	.04	0
036 DENVER	1976	.05	.004	.06	1
220 WASATCH FRONT	1976	.04	.004	.05	0

AVERAGE PERCENT CHANGE	-3.
NO. OF CITIES ABOVE STD	2
TOTAL NO. OF VIOLATIONS	2

B414
10

LINEAR ROLLBACK

STRATEGY: 1 CONTROL GROWTH RATE SCENARIO: 2 HI

NO2 AIR QUALITY CONCENTRATION (PPM) AND VIOLATIONS
(STANDARD IS .05 PPM)

REGION	BASE YEAR	BASE CONC	BASE BKGD	PROJECTED 1999 CONC	PROJECTED 1999 NUMB
004 BIRMINGHAM	1976	.04	.004	.05	0
015 PHOENIX-TUCSON	1976	.04	.004	.05	0
018 MEMPHIS	1976	.05	.004	.06	1
042 HARTFORD	1976	.05	.004	.05	0
043 NY-NJ-CONN	1976	.05	.004	.05	0
045 PHILADELPHIA	1976	.04	.004	.04	0
047 NAT. CAPITAL	1976	.04	.004	.04	0
056 ATLANTA	1976	.04	.004	.04	0
067 CHICAGO	1976	.06	.004	.06	1
078 LOUISVILLE	1976	.04	.004	.05	0
079 CINCINNATI	1976	.05	.004	.06	1
080 INDIANAPOLIS	1976	.04	.004	.04	0
085 OMAHA	1976	.03	.004	.04	0
115 BALTIMORE	1976	.04	.004	.04	0
119 BOSTON	1976	.05	.004	.05	0
122 CENT MICHIGAN	1976	.05	.004	.04	0
123 DETROIT	1976	.05	.004	.05	0
125 SOUTH MICHIGAN	1976	.04	.004	.03	0
131 MINNEAPOLIS	1976	.04	.004	.04	0
167 CHARLOTTE	1976	.04	.004	.04	0
173 DAYTON	1976	.03	.004	.04	0
174 CLEVELAND	1976	.05	.004	.05	0
178 YOUNGSTOWN	1976	.04	.004	.04	0
208 MIDDLE TENN	1976	.04	.004	.04	0
215 DALLAS-FTWORTH	1976	.04	.004	.04	0
216 HOUSTON	1976	.05	.004	.05	0
229 PUGET SOUND	1976	.04	.004	.04	0
239 SE WISCONSIN	1976	.03	.004	.03	0
024 LOS ANGELES	1976	.07	.004	.07	1
028 SACRAMENTO	1976	.03	.004	.03	0
029 SAN DIEGO	1976	.06	.004	.06	1
030 SAN FRANCISCO	1976	.04	.004	.04	0
036 DENVER	1976	.05	.004	.07	1
220 WASATCH FRONT	1976	.04	.004	.06	1

AVERAGE PERCENT CHANGE	6.
NO. OF CITIES ABOVE STD	7
TOTAL NO. OF VIOLATIONS	7